

**MINOR SOURCE OPERATING PERMIT
OFFICE OF AIR MANAGEMENT**

and

**CITY OF INDIANAPOLIS ENVIRONMENTAL
RESOURCES MANAGEMENT DIVISION**

**Winona Memorial Hospital
3232 North Meridian Street
Indianapolis, Indiana 46208**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, , 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 097-12334-00296	
Issued by: Mona A. Salem Chief Operating Officer Department of Public Works City of Indianapolis	Issuance Date:

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SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), and Environmental Resources Management Division (ERMD), City of Indianapolis. The information describing the source contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary Hospital.

Authorized Individual: Keith King
Source Address: 3232 North Meridian Street, Indianapolis, Indiana 46208
Mailing Address: 3232 North Meridian Street, Indianapolis, Indiana 46208
SIC Code: 8062
County Location: Marion
County Status: Attainment for all criteria pollutants
Source Status: Minor Source Operating Permit
Minor Source, under Section 112 of Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) Cleaver Brooks natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-1 and exhausting at Stack/Vent ID SB-1. Serial/Model # L-73045. Maximum fuel firing capacity of 12.6 million Btu per hour. Installed in 1983.
- (b) One (1) Kewanee natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-2 and exhausting at Stack/Vent ID SB-2. Serial/Model # NB22221. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.
- (c) One (1) Kewanee natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-3 and exhausting at Stack/Vent ID SB-3. Serial/Model # NB22308. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.
- (d) One (1) 610 kilowatt diesel fuel fired emergency generator. Maximum heat input capacity of 2.1 million Btu per hour (816.92 hp) or 15.2 gallons per hour.
- (e) Two (2) 200 kilowatt diesel fuel fired emergency generators. Maximum heat input capacity of 0.7 million Btu per hour (267.07 hp) or 5.1 gallons per hour.

SECTION B GENERAL CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

B.1 Permit No Defense [IC 13]

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.4 Modification to Permit [326 IAC 2]

All requirements and conditions of this operating permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of minor source operating permits pursuant to 326 IAC 2-6.1-6.

B.5 Revocation of Previous FESOP and issuance of MSOP

This permit supersedes FESOP 097-7379-00296 issued on September 23, 1997.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

- (a) The total source potential to emit of any regulated pollutant is less than 250 tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.
- (b) Any change or modification which may increase potential to emit to 250 tons per year from this source, shall cause this source to be considered a major source under PSD, 326 IAC 2-2 and 40 CFR 52.21, and shall require approval from IDEM, OAM and ERMD prior to making the change.
- (c) The total source potential to emit of any regulated pollutant is less than 100 tons per year, 10 tons per year of any single HAP, or 25 tons per year of any combination of HAPs, therefore is not a major source under Section 112 of the Clean Air Act.

C.2 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) after issuance of this permit, including the following information on each emissions unit:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM, OAM, and ERMD upon request and shall be subject to review and approval by IDEM, OAM, and ERMD. IDEM, OAM, and ERMD may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

- (a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

and

Environmental Resource Management Division
2700 South Belmont Avenue
Indianapolis, Indiana 46221

Any such application should be certified by the “authorized individual” as defined by 326 IAC 2-1.1-1.

- (c) The Permittee shall notify the IDEM, OAM and ERMD within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.4 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee’s right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAM, ERMD, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;
- (c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.5 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)] :

- (a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAM, Permits Branch and ERMD, within thirty (30) days of the change.
- (b) The written notification shall be sufficient to transfer the permit to the new owner by an notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).
- (c) IDEM, OAM, and/or ERMD shall issue a revised permit.

The notification which shall be submitted by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1.

C.6 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to operate may be revoked for

any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM and ERMD, the fact that continuance of this permit is not consistent with purposes of this article.

C.7 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity) monitor in a six (6) hour period.

C.8 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

Testing Requirements

C.9 Performance Testing [326 IAC 3-6]

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM and ERMD.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

and

Environmental Resource Management Division
2700 South Belmont Avenue

Indianapolis, Indiana 46221

No later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two (2) weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAM, and ERMD within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM, and ERMD, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Compliance Monitoring Requirements

C.10 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.11 Monitoring Methods [326 IAC 3]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

Record Keeping and Reporting Requirements

C.12 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or Indianapolis Environmental Resource Management Division (ERMD) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to IDEM, OAM and ERMD, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.13 Annual Emission Statement [326 IAC 2-6]

- (a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual emission statement shall meet the following requirements:
 - (1) Indicate actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting);
 - (2) Indicate actual emissions of other regulated pollutants from the source, for purposes of Part 70 fee assessment.
- (b) The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30. The annual emission statement must be submitted to:
- (c) The annual emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, and ERMD on or before the date it is due.

The submittal by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

C.14 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) With the exception of performance tests conducted in accordance with Section C.9, Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.
- (e) At its discretion, IDEM, OAM and EMRD may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.15 General Record Keeping Requirements [326 IAC 2-6.1-2]

- (a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM, and EMRD representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner or EMRD makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner or EMRD within a reasonable time.
- (b) Records of required monitoring information shall include, where applicable:
 - (1) The date, place, and time of sampling or measurements;
 - (2) The dates analyses were performed;
 - (3) The company or entity performing the analyses;
 - (4) The analytic techniques or methods used;
 - (5) The results of such analyses; and
 - (6) The operating conditions existing at the time of sampling or measurement.
- (c) Support information shall include, where applicable:
 - (1) Copies of all reports required by this permit;
 - (2) All original strip chart recordings for continuous monitoring instrumentation;
 - (3) All calibration and maintenance records;
 - (4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures.
- (d) All record keeping requirements not already legally required shall be implemented when operation begins.

C.16 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) To affirm that the source has met all the compliance monitoring requirements stated in this permit the source shall submit a Semi-Annual Compliance Monitoring Report. Any deviation from the requirements and the date(s) of each deviation must be reported. The Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

and

Environmental Resource Management Division
2700 South Belmont Avenue
Indianapolis, Indiana 46221

- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, and ERMD on or before the date it is due.
- (d) Unless otherwise specified in this permit, any semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The reports do not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:
 - (1) An excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or
 - (2) A malfunction as described in 326 IAC 1-6-2; or
 - (3) Failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.
 - (4) Failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.
- (f) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.
- (g) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

C.17 Annual Notification [326 IAC 2-6.1-5(a)(5)]

- (a) Annual notification shall be submitted to the Office of Air Management and ERMD stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.

- (b) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.
- (c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in the format attached no later than March 1 of each year to:

Compliance Data Section, Office of Air Management
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, IN 46206-6015

and

Environmental Resource Management Division
2700 South Belmont Avenue
Indianapolis, Indiana 46221

- (d) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, and ERMD on or before the date it is due.

SECTION D.1

EMISSIONS UNIT OPERATION CONDITIONS

Facility Description [326 IAC 2-6.1-5]:(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Unit ID B-1	One (1) Cleaver Brooks natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-1 and exhausting at Stack/Vent ID SB-1. Serial/Model # L-73045. Maximum fuel firing capacity of 12.6 million Btu per hour. Installed in 1983.
Emission Unit ID B-2	One (1) Kewanee natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-2 and exhausting at Stack/Vent ID SB-2. Serial/Model # NB22221. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.
Emission Unit ID B-3	One (1) Kewanee natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-3 and exhausting at Stack/Vent ID SB-3. Serial/Model # NB22308. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.

Emission Limitations and Standards

D.1.1 Particulate Matter (PM) [326 IAC 6-2-2]

Particulate matter emissions from the indirect heating Emission Units ID B-1, B-2 and B-3 each shall be limited by the following equation:

$$PM \text{ (lbs/MMBtu)} = \frac{0.87}{Q^{0.16}}$$

Where Q = the total source operating capacity rating in million Btu per hour at the time each boiler was added.

Particulate Matter emissions from Emission Unit ID B-1, B-2, and B-3 each shall be limited to 0.5 pounds of PM per million Btu.

D.1.2 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1]

Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), SO₂ emissions from Emission Unit ID's: B-1, B-2 and B-3 shall not exceed 0.5 pounds per million Btu.

D.1.3 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C.2 Preventive Maintenance Plan, of this permit, is required for each emissions unit and any control devices

Compliance Determination Requirements

D.1.4 Testing Requirements [326 IAC 2-1.1-11]

The Permittee is not required to test this emissions unit by this permit. However, IDEM and ERMD may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM or ERMD, compliance with the particulate matter limit specified in Condition D.1.1 shall be determined by a performance test conducted in accordance with Section C.9 - Performance Testing

D.1.5 Sulfur Dioxide Emissions and Sulfur Content

Compliance shall be determined utilizing either a(1) or a(2)below:

- (a) Pursuant to 326 IAC 3-3-4, the Permittee shall demonstrate that the fuel oil sulfur content does not exceed forty eight hundredths percent (0.48%) by weight by:
 - (1) Providing vendor analysis of fuel delivered, if accompanied by a certification;
 - (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

A determination of noncompliance pursuant to either of the methods specified in (a)(1) or (a)(2) above shall not be refuted by evidence of compliance pursuant to the other method.

Compliance Monitoring Requirements [326 IAC 2-6.1-2][326 IAC 2-6.1-5(a)(2)]

D.1.6 Visible Emissions Notations

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- (a) At any time Emission Unit ID B-1, B-2 and/or B-3 is being fired using a fuel other than natural gas, daily visible emission notations of Stack/Vent IDs SB-1, SB-2 and SB-3 exhaust shall be performed during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
 - (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
 - (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
 - (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
 - (e) The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Record Keeping and Reporting Requirements [326 IAC 2-6.1-2][326 IAC 2-6.1-5(a)(2)]

D.1.7 Record Keeping Requirements

-
- (a) To document compliance with Condition D.1.2, the Permittee shall maintain records in accordance with (1) through (5) below. The fuel oil sulfur limit applies at all times including periods of startup, shutdown, and malfunction.
 - (1) Results of any fuel sulfur content analyses performed in accordance with Condition D.1.5(a)(2) of this Permit;
 - (2) Actual # 2 distillate fuel oil fuel sulfur content of fuel consumed;

- (3) Fuel supplier certifications or results of fuel oil analysis.

The fuel supplier certification shall contain, as a minimum, the following:

- (4) The name of the fuel supplier; and
- (5) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

- (b) All records shall be maintained in accordance with Section C.15 - General Record Keeping Requirements, of this permit.

SECTION D.2

EMISSIONS UNIT OPERATION CONDITIONS

Facility Description [326 IAC 2-6.1-5]:(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

One (1) 610 kilowatt diesel fuel fired emergency generator. Maximum heat input capacity of 2.1 million Btu per hour (816.92 hp) or 15.2 gallons per hour.

Two (2) 200 kilowatt diesel fuel fired emergency generators. Maximum heat input capacity of 0.7 million Btu per hour (267.07 hp) or 5.1 gallons per hour.

There are no specific applicable requirements and monitoring to these emission units.

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

I hereby certify that Winona Memorial Hospital is: ☒ still in operation.
☐ no longer in operation.

I hereby certify that Winona Memorial Hospital is:

9 in compliance with the requirements of MSOP M 097-12334-00296.

9 not in compliance with the requirements of MSOP M 097-12334-00296.

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

[illegible]

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER : (317) 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: _____ PHONE NO. () _____
LOCATION: (CITY AND COUNTY) _____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____
INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND
REASON: _____

DATE/TIME MALFUNCTION STARTED: ____/____/20____ AM /
PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE ____/____/20____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO₂, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____
INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2
PAGE 1 OF 2

**Please note - This form should only be used to report malfunctions
applicable to Rule 326 IAC 1-6 and to qualify for
the exemption under 326 IAC 1-6-4.**

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION
and
INDIANAPOLIS ENVIRONMENTAL RESOURCES MANAGEMENT DIVISION
AIR QUALITY MANAGEMENT SECTION
DATA COMPLIANCE**

**MINOR SOURCE OPERATING PERMIT
SEMI ANNUAL COMPLIANCE MONITORING REPORT**

Winona Memorial Hospital:
3232 North Meridian Street, Indianapolis, Indiana 46208
Mailing Address: Same as above
MSOP No.: M 097-12334-00296

Months: _____ **to** _____ **Year:** _____

This report is an affirmation that the source has met all the compliance monitoring requirements stated in this permit. This report shall be submitted semi annually. Any deviation from the compliance monitoring requirements and the date(s) of each deviation must be reported. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

9 NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

9 THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD.

Compliance Monitoring Requirement (e.g. Permit Condition D.1.3)	Number of Deviations	Date of each Deviation

Form Completed By: _____
Title/Position: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

**Indiana Department of Environmental Management
Office of Air Management
and
Environmental Resources Management Division, City of Indianapolis**

Technical Support Document (TSD) for a Minor Source Operating Permit

Source Background and Description

Source Name: Winona Memorial Hospital
Source Location: 3232 North Meridian Street, Indianapolis, Indiana 46208
County: Marion
SIC Code: 8062
Operation Permit No.: M 097-12334-00296
Permit Reviewer: Dana Armstrong

The Office of Air Management (OAM) and Environmental Resources Management Division (ERMD) has reviewed an application from Winona Memorial Hospital relating to the operation of (3) boilers and miscellaneous insignificant activities performed in support of this hospital.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) Cleaver Brooks natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-1 and exhausting at Stack/Vent ID SB-1. Serial/Model # L-73045. Maximum fuel firing capacity of 12.6 million Btu per hour. Installed in 1983.
- (b) One (1) Kewanee natural gas and/or # 2 distillate oil fuel fired boiler identified as Emission Unit ID B-2 and exhausting at Stack/Vent ID SB-2. Serial/Model # NB22221. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.
- (c) One (1) Kewanee natural gas and/or #2 distillate oil fuel fired boiler identified as Emission Unit ID B-3 and exhausting at Stack/Vent ID SB-3. Serial/Model # NB22308. Maximum fuel firing capacity of 10.0 million Btu per hour. Installed in 1965.
- (d) One (1) 610 kilowatt diesel fuel fired emergency generator. Maximum heat input capacity of 2.1 million Btu per hour (824.78 hp) or 15.2 gallons per hour.
- (e) Two (2) 200 kilowatt diesel fuel fired emergency generators. Maximum heat input capacity of 0.7 million Btu per hour (267.07 hp) or 5.1 gallons per hour.

There are no new unpermitted facilities operating at this source during this review process.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

- (a) F097-7379-00296, issued on December 6, 1996; and

All conditions from previous approval were incorporated into this permit except the following:

F097-7379-00296 (A.1)

Reason not incorporated: Source was previously a major source under Section 112 of the Clean Air Act because potential sourcewide HAPs emissions were above major source threshold limitations due the Kelly 780/31 Medical Waste Incinerator Identified as Emission Unit ID MWI-1. After source discontinued the use of said emission unit, sourcewide potential to emit was below major source thresholds for all priority pollutants so A.1 general information about source status was changed to "minor source under Section 112 of the Clean Air Act." Source was no longer under the requirements for a Federally Enforceable State Operating Permit (FESOP) for the same reason.

F097-7379-00296 (B.1-B.28)

Reason not incorporated: Was only applicable to FESOP. Was replaced with (B.1-B.4) from the Minor Source Operating Permit model

F097-7379-00296 (C.1-C.19)

Reason not incorporated: Was only applicable to FESOP. Was replaced with (C.1-C.17) from the Minor Source Operating Permit model.

F097-7379-00296 (D.1.1-D.1.7) for the following equipment One (1) Kelly 780/31 Medical Waste Incinerator identified as Emission Unit ID MWI-1. Maximum incineration capacity rated at 500 pounds of waste per hour. Controlled air type unit equipped with primary and secondary chamber natural gas fired burners rated at a combined maximum capacity of 10.4 million Btu per hour. Exhaust gas volume of 5900 acfm through Stack/Vent ID SMW. Installed in 1983.

Reason not incorporated: Source has stated that it has discontinued the use of (but did not remove) the above medical waste incinerator in the first week of March 2000.

F097-7379-00296 D.3.1 Process weight limitations for 610 kW generators and two (2) 200 kW generators pursuant to 326 IAC 6-3.

Reason not incorporated: "Process weight" definition [326 IAC 1-2-59] does not apply to "liquid and gaseous fuels." The generators are fueled by liquid diesel fuel, therefore are exempt from the process weight rules of 326 IAC 6-3.

Enforcement Issue

- (a) There are no Enforcement actions pending.

Recommendation

The staff recommends to the Administrator that the MSOP be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application.

An administratively complete MSOP application for the purposes of this review was received on February 22, 2000.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	2.1
PM-10	2.1
SO ₂	69.7
VOC	0.5
CO	5.8
NO _x	23.1

HAP's	Potential To Emit (tons/year)
No single HAPs greater than 10 tpy	NA
TOTAL	0.25

See Appendix A: Emissions Calculations for detailed calculations (Page numbers 1 through 19 in Appendix A).

(a) Fugitive Emissions

Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter emissions are not counted toward determination of PSD and Emission Offset applicability.

Actual Emissions

No previous emission data has been received from the source.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/ facility	PM10	PM	SO ₂	NO _x	VOC	CO	Combined HAPs
Emission Unit ID B-1 Boiler # 1	0.8	0.8	26.8	7.9	0.2	2.0	0.09
Emission Unit ID B-2 Boiler # 2	0.6	0.6	21.4	6.3	0.1	1.6	0.07

Emission Unit ID B-3 Boiler # 3	0.6	0.6	21.4	6.3	0.1	1.6	0.08
Emission Unit ID MWI-1 Kelly Incinerator	7.1	5.7	2.4	0.4	4.8	10.3	9.0/24.0
Generators	0.0	0.1	0.1	0.1	0.1	0.7	0
Total Emissions	2.0	2.1	69.7	23.1	0.5	5.8	0.25

Attached Table summarizes the permit conditions and requirements

County Attainment Status

The source is located in Marion County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Marion County has been classified as attainment or unclassifiable for PM-10, SO₂, and Pb. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Federal Rule Applicability

- (a) Since source discontinued the use of the Kelley Medical Waste Incinerator, emission unit MWI-1, in March of 2000, there are no New Source Performance Standards (326 IAC 12) applicable to this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 1-6 (Malfunctions)

This source is subject to 326 IAC 1-6 (Malfunctions) because it is required to have a Permit. Any source required to obtain a Permit is then subject to the applicability of this rule. Any malfunction which lasts more than one (1) hour in duration and results in excess air pollutant(s) emissions, must verbally report such malfunction within four (4) daytime business hours. Records of all such occurrences must be kept for a period of no less than three (3) years from the date of said occurrence.

326 IAC 1-6-3 (Preventive Maintenance Plans)

This source is subject to 326 IAC 1-6-3 because it is required to obtain a Permit. Any person responsible for operating any facility required to obtain a Permit shall prepare and maintain a Preventive Maintenance Plan which includes the following:

- 1) Identification of responsible individuals for inspecting, maintaining and repairing emission control devices.
- 2) Description of items and conditions that will be inspected and an inspection schedule.
- 3) Identification of replacement parts in inventory for quick replacement.

The Preventive Maintenance Plan shall be submitted upon request and subject to review and approval by ERMD.

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has potential emission of more than ten (10) tons per year of NO_x in Marion County. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by April 15 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 2-8 (Federally Enforceable State Operating Permit - FESOP- Program)

This source is not subject to the provisions of 326 IAC 2-8 (FESOP) because source wide potential to emit does not exceed any major source threshold.

326 IAC 5-1 (Visible Emissions Limitations)

This source is not located in Washington township, therefore pursuant to 326 IAC 5-1-2 (Visible Emissions Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall meet the following, unless otherwise stated in this permit. Source meets the criteria outlined in 326 IAC 5-1-1(c)(5):

- (a) Visible emissions shall not exceed an average of thirty percent (30%) opacity in twenty-four (24) consecutive readings as determined by 326 IAC 5-1-4,
- (b) Visible emissions shall not exceed sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period..

State Rule Applicability - Individual Facilities

326 IAC 4-2-1 (Incinerators)

This source is not subject to 326 IAC 4-2-1 because the use of Emission Unit ID MWI has been discontinued as of March 2000.

326 IAC 6-2-2 (Particulate Emission Limitations for sources of Indirect Heating)

This source is subject to 326 IAC 6-2-2 because: (1) It combusts fuel for indirect heating by using boilers, identified as emission units B-1, B-2, and B-3, (2) Each boiler was installed no later than 1983 and (3) The facility is located in Marion County. Pursuant to 326 IAC 6-2-2, the source is subject to the PM emission limitation of 0.50 based on the following equation:

$$PM \text{ (lbs/MMBtu)} = \frac{0.87}{Q^{0.16}}$$

Where Q = the total source operating capacity rating in million Btu per hour. Refer to TSD Appendix A Page 19 for calculation of allowable PM for the source.

326 IAC 7-1.1-1 (Sulfur Dioxide Emission Limitations)

326 IAC 7-1.1-1 does not appear to apply to this source because potential SO₂ emissions from the source do not appear to exceed twenty (25) tons per year or ten (10) pounds per hour. However, in the initial FESOP application submitted December 6, 1996, the source stated that 1.0 % sulfur was the sulfur content of # 2 distillate fuel oil consumed by boilers at the source and that this value was from AP-42 found during application preparation. Upon receipt July 25, 1997 of a response to an RAI, the fuel sulfur content of # 2 distillate fuel oil potentially consumed by boilers was stated to be 0.3% sulfur. As a result, 326 IAC 7-1.1-1 does not appear applicable to this source. However, an upper limit fuel oil sulfur content of 0.48 % is not to be exceeded. Fuel oil sulfur content will be set such that 326 IAC 7-1.1-1 does not apply.

Compliance Requirements

Compliance Determination Requirements in permit Section D are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in permit Section D. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

- 1) Emission Unit ID B-1, B-2 and B-3, the three (3) natural gas fired/# 2 distillate fuel oil boilers, have applicable compliance monitoring conditions as specified below:
 - (a) Daily visible emissions notations of Stack/Vent ID SB-1, SB-2 and SB-3, shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Preventive Maintenance Plan for these units shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

These monitoring conditions are necessary to ensure compliance with 326 IAC 5-1-4.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) FESOP Application Form GSD-08.

(a) This source will emit levels of air toxics less than those which constitute a major source according to section 112 of the 1990 Clean Air Act Amendments.

(b) See attached calculations (TSD Appendix A: pages 19) for total air toxics potential emissions.

Conclusion

The operation will be subject to the conditions of the attached proposed Minor Source Operating Permit (M 097-12334-0296).

Boiler 1
Emission Unit
B-1

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

Page 1 of 19

Company Name: Winona Memorial Hospital
Address City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

12.6

110.4

Pollutant

Emission Factor in lb/MMCF	PM 7.6	PM10 7.6	SO2 0.6	NOx	VOC 5.5	CO 84.0
				100.0 *see below		
Potential Emission in tons/yr	0.4	0.4	0.0	5.5	0.3	4.6

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

PM emission factors are condensable and filterable.

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
Gas Boiler
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Pit ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

AP-43 data given in lb/mmcf: To convert lb/mmcf-lb/mmbtu, divide by 1,020

HAPs - Metals

	Arsenic	Beryllium	Cadmium	Chromium	Lead
Emission Factor in lb/mmcf	2.0E-04	1.2E-05	1.1E-03	1.4E-03	0.0E+00
Emission Factor in lb/mmBtu	2.0E-07	1.2E-08	1.1E-06	1.4E-06	0.0E+00
Potential Emission in tons/yr	1.08E-05	6.49E-07	5.95E-05	7.57E-05	0.00E+00

HAPs - Metals (continued)

	Mercury	Manganese	Nickel	Selenium	Total Haps Metals
Emission Factor in lb/mmcf	2.6E-04	3.8E-04	2.1E-03	2.4E-05	
Emission Factor in lb/mmBtu	2.5E-07	3.7E-07	2.1E-06	2.4E-08	
Potential Emission in tons/yr	1.41E-05	2.06E-05	1.14E-04	1.30E-06	3.21E-04

HAPs - Organics

	2-Methylnaphthalene	3-Methylchloranthrene	7,12-Dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene
Emission Factor in lb/mmcf	2.4E-05	1.8E-06	1.6E-06	1.8E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-08	1.8E-09	1.6E-09	1.8E-09	1.8E-09
Potential Emission in tons/yr	1.30E-06	9.74E-08	8.66E-08	9.74E-08	9.74E-08



HAPs - Organics(continued)

	Anthracene	Benz(a)anthracene	Benzene	Benzo(a)pyrene	Benzo(b)fluoranthene
Emission Factor in lb/mmcf	2.4E-06	1.8E-06	2.1E-03	1.2E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-09	1.8E-09	2.1E-06	1.2E-09	1.8E-09
Potential Emission in tons/yr	1.30E-07	9.74E-08	1.14E-04	6.49E-08	9.74E-08

HAPs - Organics(continued)

	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Dichlorobenzene
Emission Factor in lb/mmcf	1.2E-06	1.8E-06	1.8E-06	1.2E-06	1.2E-03
Emission Factor in lb/mmBtu	1.2E-09	1.8E-09	1.8E-09	1.2E-09	1.2E-06
Potential Emission in tons/yr	6.49E-08	9.74E-08	9.74E-08	6.49E-08	6.49E-05

HAPs - Organics(continued)

	Fluoranthene	Fluorene	Formaldehyde	Hexane	Indeno(1,2,3-cd)pyrene
Emission Factor in lb/mmcf	3.0E-06	2.8E-06	7.5E-06	1.8E+00	1.8E-06
Emission Factor in lb/mmBtu	2.9E-09	2.7E-09	7.4E-09	1.8E-03	1.8E-09
Potential Emission in tons/yr	1.62E-07	1.51E-07	4.06E-07	9.74E-02	9.74E-08

HAPs - Organics(continued)

	Naphthalene	Phenanthrene	Total Haps Organics	Total Haps Combined
Emission Factor in lb/mmcf	6.1E-04	1.7E-05		
Emission Factor in lb/mmBtu	6.0E-07	1.7E-08		
Potential Emission in tons/yr	3.30E-05	9.20E-07	9.76E-02	9.79E-02

Methodology: Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

Boiler 1
Emission Unit
B-1

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil

Page 4 of 19

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
kgals/year

S = Weight % Sulfur
0.48

12.6

788.4

Emission Factor in lb/kgal	Pollutant				
	PM*	SO2	NOx	VOC	CO
	2.0	68.16 (142.0S)	20.0	0.34	5.0
Potential Emission in tons/yr	0.8	26.9	7.9	0.1	2.0

Methodology

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file)

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.

Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

HAPs - Metals

Emission Factor in lb/mmBtu	Arsenic 4.0E-06	Beryllium 3.0E-06	Cadmium 3.0E-06	Chromium 3.0E-06	Lead 9.0E-06
Potential Emission in tons/yr	2.21E-04	1.66E-04	1.66E-04	1.66E-04	4.97E-04

HAPs - Metals (continued)

Emission Factor in lb/mmBtu	Mercury 3.0E-06	Manganese 6.0E-06	Nickel 3.0E-06	Selenium 1.5E-05	Total Haps Metals
Potential Emission in tons/yr	1.66E-04	3.31E-04	1.66E-04	8.28E-04	2.70E-03

Methodology

No data was available in AP-42 for organic HAPs.

Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

Boiler 2
Emission Unit
B-2

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

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Company Name: Winona Memorial Hospital
Address City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

10.0

87.6

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0	5.5	84.0
				*see below		
Potential Emission in tons/yr	0.3	0.3	0.0	4.4	0.2	3.7

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

PM emission factors are condensable and filterable.

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
Gas Boiler
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

AP-43 data given in lb/mmcf: To convert lb/mmcf-lb/mmbtu, divide by 1,020

HAPs - Metals

	Arsenic	Beryllium	Cadmium	Chromium	Lead
Emission Factor in lb/mmcf	2.0E-04	1.2E-05	1.1E-03	1.4E-03	0.0E+00
Emission Factor in lb/mmBtu	2.0E-07	1.2E-08	1.1E-06	1.4E-06	0.0E+00
Potential Emission in tons/yr	8.59E-06	5.15E-07	4.72E-05	6.01E-05	0.00E+00

HAPs - Metals (continued)

	Mercury	Manganese	Nickel	Selenium	Total Haps Metals
Emission Factor in lb/mmcf	2.6E-04	3.8E-04	2.1E-03	2.4E-05	
Emission Factor in lb/mmBtu	2.5E-07	3.7E-07	2.1E-06	2.4E-08	
Potential Emission in tons/yr	1.12E-05	1.63E-05	9.02E-05	1.03E-06	2.55E-04

HAPs - Organics

	Methylnaphtale	3-Methylchloranthrene	7,12-Dimethyl benz(a)anthracene	Acenaphthene	Acenaphthylene
Emission Factor in lb/mmcf	2.4E-05	1.8E-06	1.6E-06	1.8E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-08	1.8E-09	1.6E-09	1.8E-09	1.8E-09
Potential Emission in tons/yr	1.03E-06	7.73E-08	6.87E-08	7.73E-08	7.73E-08



HAPs - Organics(continued)

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	Anthracene	Benz(a)anthracene	Benzene	Benzo(a)pyrene	Benzo(b)fluoranthene
Emission Factor in lb/mmcf	2.4E-06	1.8E-06	2.1E-03	1.2E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-09	1.8E-09	2.1E-06	1.2E-09	1.8E-09
Potential Emission in tons/yr	1.03E-07	7.73E-08	9.02E-05	5.15E-08	7.73E-08

HAPs - Organics(continued)

	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Dichlorobenzene
Emission Factor in lb/mmcf	1.2E-06	1.8E-06	1.8E-06	1.2E-06	1.2E-03
Emission Factor in lb/mmBtu	1.2E-09	1.8E-09	1.8E-09	1.2E-09	1.2E-06
Potential Emission in tons/yr	5.15E-08	7.73E-08	7.73E-08	5.15E-08	5.15E-05

HAPs - Organics(continued)

	Fluoranthene	Fluorene	Formaldehyde	Hexane	Indeno(1,2,3-cd)pyrene
Emission Factor in lb/mmcf	3.0E-06	2.8E-06	7.5E-06	1.8E+00	1.8E-06
Emission Factor in lb/mmBtu	2.9E-09	2.7E-09	7.4E-09	1.8E-03	1.8E-09
Potential Emission in tons/yr	1.29E-07	1.20E-07	3.22E-07	7.73E-02	7.73E-08

HAPs - Organics(continued)

	Naphthalene	Phenanthrene	Total Haps Organics	Total Haps Combined
Emission Factor in lb/mmcf	6.1E-04	1.7E-05		
Emission Factor in lb/mmBtu	6.0E-07	1.7E-08		
Potential Emission in tons/yr	2.62E-05	7.30E-07	7.75E-02	7.77E-02

Boiler 2
Emission Unit
B-2

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil

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Company Name: **Winona Memorial Hospital**
Address, City IN Zip: **3232 North Meridian Street Indianapolis, In. 46208**
CP:
Plt ID: **M 097-12334-0296**
Reviewer: **DRA**
Date: **06/26/2000**

Heat Input Capacity
MMBtu/hr

Potential Throughput
kgals/year

S = Weight % Sulfur
0.48

10.0

625.714286

Emission Factor in lb/kgal	Pollutant				
	PM*	SO2	NOx	VOC	CO
	2.0	68.16 (142.0S)	20.0	0.34	5.0
Potential Emission in tons/yr	0.6	21.3	6.3	0.1	1.6

Methodology

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file)

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.

Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emission calculations.

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

HAPs - Metals

Emission Factor in lb/mmBtu	Arsenic 4.0E-06	Beryllium 3.0E-06	Cadmium 3.0E-06	Chromium 3.0E-06	Lead 9.0E-06
Potential Emission in tons/yr	2.21E-04	1.66E-04	1.66E-04	1.66E-04	4.97E-04

HAPs - Metals (continued)

Emission Factor in lb/mmBtu	Mercury 3.0E-06	Manganese 6.0E-06	Nickel 3.0E-06	Selenium 1.5E-05	Total Haps Metals
Potential Emission in tons/yr	1.66E-04	3.31E-04	1.66E-04	8.28E-04	2.70E-03

Methodology

No data was available in AP-42 for organic HAPs.

Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

Boiler 3
Emission Unit
B-3

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Small Industrial Boiler

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Company Name: Winona Memorial Hospital
Address City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

10.0

87.6

Emission Factor in lb/MMCF	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
	7.6	7.6	0.6	100.0	5.5	84.0
				*see below		
Potential Emission in tons/yr	0.3	0.3	0.0	4.4	0.2	3.7

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

PM emission factors are condensable and filterable.

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
Gas Boiler
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

AP-43 data given in lb/mmcf: To convert lb/mmcf-lb/mmbtu, divide by 1,020

HAPs - Metals

	Arsenic	Beryllium	Cadmium	Chromium	Lead
Emission Factor in lb/mmcf	2.0E-04	1.2E-05	1.1E-03	1.4E-03	0.0E+00
Emission Factor in lb/mmBtu	2.0E-07	1.2E-08	1.1E-06	1.4E-06	0.0E+00
Potential Emission in tons/yr	8.59E-06	5.15E-07	4.72E-05	6.01E-05	0.00E+00

HAPs - Metals (continued)

	Mercury	Manganese	Nickel	Selenium	Total Haps Metals
Emission Factor in lb/mmcf	2.6E-04	3.8E-04	2.1E-03	2.4E-05	
Emission Factor in lb/mmBtu	2.5E-07	3.7E-07	2.1E-06	2.4E-08	
Potential Emission in tons/yr	1.12E-05	1.63E-05	9.02E-05	1.03E-06	2.55E-04

HAPs - Organics

	Methylnapthale	3-Methylchlor anthrene	7,12-Dimethyl benz(a)anthra cene	Acenaphthene	Acenaphthylen e
Emission Factor in lb/mmcf	2.4E-05	1.8E-06	1.6E-06	1.8E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-08	1.8E-09	1.6E-09	1.8E-09	1.8E-09
Potential Emission in tons/yr	1.03E-06	7.73E-08	6.87E-08	7.73E-08	7.73E-08

HAPs - Organics(continued)

Page 13 of 19

	Anthracene	Benz(a)anthracene	Benzene	Benzo(a)pyrene	Benzo(b)fluoranthene
Emission Factor in lb/mmcf	2.4E-06	1.8E-06	2.1E-03	1.2E-06	1.8E-06
Emission Factor in lb/mmBtu	2.4E-09	1.8E-09	2.1E-06	1.2E-09	1.8E-09
Potential Emission in tons/yr	1.03E-07	7.73E-08	9.02E-05	5.15E-08	7.73E-08

HAPs - Organics(continued)

	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Dichlorobenzene
Emission Factor in lb/mmcf	1.2E-06	1.8E-06	1.8E-06	1.2E-06	1.2E-03
Emission Factor in lb/mmBtu	1.2E-09	1.8E-09	1.8E-09	1.2E-09	1.2E-06
Potential Emission in tons/yr	5.15E-08	7.73E-08	7.73E-08	5.15E-08	5.15E-05

HAPs - Organics(continued)

	Fluoranthene	Fluorene	Formaldehyde	Hexane	Indeno(1,2,3-cd)pyrene
Emission Factor in lb/mmcf	3.0E-06	2.8E-06	7.5E-06	1.8E+00	1.8E-06
Emission Factor in lb/mmBtu	2.9E-09	2.7E-09	7.4E-09	1.8E-03	1.8E-09
Potential Emission in tons/yr	1.29E-07	1.20E-07	3.22E-07	7.73E-02	7.73E-08

HAPs - Organics(continued)

	Naphthalene	Phenanthrene	Total Haps Organics	Total Haps Combined
Emission Factor in lb/mmcf	6.1E-04	1.7E-05		
Emission Factor in lb/mmBtu	6.0E-07	1.7E-08		
Potential Emission in tons/yr	2.62E-05	7.30E-07	7.75E-02	7.77E-02

Boiler 3
Emission Unit
B-3

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil

Page 14 of 19

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

Heat Input Capacity
MMBtu/hr

Potential Throughput
kgals/year

S = Weight % Sulfur
0.48

10.0

625.714286

Emission Factor in lb/kgal	Pollutant				
	PM*	SO2	NOx	VOC	CO
	2.0	68.16 (142.0S)	20.0	0.34	5.0
Potential Emission in tons/yr	0.6	21.3	6.3	0.1	1.6

Methodology

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file)

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.

Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
#1 and #2 Fuel Oil
HAPs Emissions

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

HAPs - Metals

Emission Factor in lb/mmBtu	Arsenic 4.0E-06	Beryllium 3.0E-06	Cadmium 3.0E-06	Chromium 3.0E-06	Lead 9.0E-06
Potential Emission in tons/yr	2.21E-04	1.66E-04	1.66E-04	1.66E-04	4.97E-04

HAPs - Metals (continued)

Emission Factor in lb/mmBtu	Mercury 3.0E-06	Manganese 6.0E-06	Nickel 3.0E-06	Selenium 1.5E-05	Total Haps Metals
Potential Emission in tons/yr	1.66E-04	3.31E-04	1.66E-04	8.28E-04	2.70E-03

Methodology

No data was available in AP-42 for organic HAPs.

Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

**Appendix A: Emission Calculations
Internal Combustion Engines - Diesel Fuel
>600 HP**

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Diesel Generators

(3 total units)

(2) 200 kw

(1) 610 kw

Company Name: Winona Memorial Hospital
Address, City IN Zip: 3232 North Meridian Street Indianapolis, In. 46208
CP:
Plt ID: M 097-12334-0296
Reviewer: DRA
Date: 06/26/2000

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity **Unit # 1**

S=

0.3

= WEIGHT % SULFUR

MM Btu/hr

if 1 kw = 3410 Btu/hr then, 200 kw = 0.68 MMBtu/hr

0.68

1 Btu/hr=3.9275*10⁽⁻⁴⁾Mechanical hp (AP 42 Appdx A)

10⁶ Btu/hr=392.75 Mechanical hp

267.07 hp

Emission Factor in lb/MMBtu	Pollutant					
	PM 0.062	PM10 0.0496	SO2 0.4 (1.01S)	NOx 3.1	VOC 0.1	CO 0.81
Potential Emission in tons/yr (@ 500 hrs operation/yr)	0.0	0.0	0.0204	0.527	0.017	0.1377

Heat Input Capacity **Unit # 2**

MM Btu/hr

S= 0.3 = WEIGHT % SULFUR

1 Btu/hr=3.9275*10⁽⁻⁴⁾Mechanical hp (AP 42 Appdx A)if 1 kw = 3410 Btu/hr then, 200 kw = 0.68 MMBtu 10⁶ Btu/hr=392.75 Mechanical hp

0.68				267.07	hp	
Pollutant						
Emission Factor in lb/MMBtu	PM 0.062	PM10 0.0496	SO2 0.4 (1.01S)	NOx 3.1	VOC 0.1	CO 0.81
Potential Emission in tons/yr (@ 500 hrs operation/yr)	0.0	0.0	0.0204	0.527	0.017	0.1377

Heat Input Capacity **Unit # 3**

MM Btu/hr

S= 0.3 = WEIGHT % SULFUR

if 1 kw = 3410 Btu/hr then, 610 kw = 2.08 MMBtu 1 Btu/hr=3.9275*10⁽⁻⁴⁾Mechanical hp (AP 42 Appdx A)

2.08	10^6 Btu/hr=392.75 Mechanical hp					
	816.92 hp					
	Pollutant					
Emission Factor in lb/MMBtu	PM 0.062	PM10 0.0496	SO2 0.4 (1.01S)	NOx 3.1	VOC 0.1	CO 0.81
Potential Emission in tons/yr (@ 500 hrs operation/yr)	0.0	0.0	0.0624	1.612	0.052	0.4212

SUM	0.1	0.0	0.1	2.7	0.1	0.7
-----	-----	-----	-----	-----	-----	-----

Methodology

Emission Factors are from AP 42 Table 3.4-2 and Table 3.4-5

PM emissions calculated from AP42 (Fifth edition, January 1995), Table 3.4-5, Footnotes c and d.

1 kw = 3410 Btu/hr AP42 (Fifth edition, January 1995), Appendix A

Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 500 hr/yr / (2,000 lb/ton)

Total and Limited Potential To Emit:

Page 18 of 19

Equipment	PM10	PM	SO2	NOx	VOC	CO	Comb. HAPS
Boiler 1 Gas	0.4	0.4	0.0	5.5	0.3	4.6	0.097927
Boiler 1 Fuelna		0.8	26.9	7.9	0.1	2.0	0.002704
Maximum	0.4	0.8	26.9	7.9	0.3	4.6	0.097927
Boiler 2 Gas	0.3	0.3	0.0	4.4	0.2	3.7	0.077720
Boiler 2 Fuelna		0.6	21.3	6.3	0.1	1.6	0.002704
Maximum	0.3	0.6	21.3	6.3	0.2	3.7	0.077720
Boiler 3 Gas	0.3	0.3	0.0	4.4	0.2	3.7	0.077720
Boiler 3 Fuelna		0.6	21.3	6.3	0.1	1.6	0.002704
Maximum	0.3	0.6	21.3	6.3	0.2	3.7	0.077720
Equipment	PM	PM10	SO2	NOx	VOC	CO	Comb. HAPS
Generator 1	0.0	0.0	0.0	0.5	0.0	0.1	na
Generator 2	0.0	0.0	0.0	0.5	0.0	0.1	na
Generator 3	0.0	0.0	0.1	1.6	0.1	0.4	na
Generators	0.1	0.0	0.1	2.7	0.1	0.7	na
Total	2.09	1.13	69.62	23.06	0.87	12.69	0.25

Winona Hospital Boiler Allowable/PTE PM & PM10

Boiler	Emissions Unit	Install Date	Max MMBtu/hr heat input
Boiler # 1	B-1	1983	12.6
Boiler # 2	B-2	1965	10.0
Boiler # 3	B-3	1965	10.0
sum			32.6

Applicable State PM rule(s): Description of Rule:

326 IAC 6.2-1 (6.2-2) Particulate Emission Limitations for Sources of Indirect Heating

326 IAC 6.2-2.(a) $Pt \text{ (lbs PM/MMBtu)} = 0.87 / Q^{0.16}$

where Q =

where Q is defined as the total source maximum operating capacity rating in million Btu per hour (mmBtu/hr)

Winona Hospital Boiler Allowable/PTE SO2

Page 19 of 19

Boiler	Emissions Unit	Install Date	Max MMBtu/hr heat input	Allowable lbs/MMBtu	Allowable SO2 tons/yr	PTE @ Actual sulfur % (tons/yr)	Actual Fuel Sulfur %
Boiler # 1	B-1	1983	12.6	0.5	26.8	16.7	0.3
Boiler # 2	B-2	1965	10	0.5	21.4	13.4	0.3
Boiler # 3	B-3	1965	10	0.5	21.4	13.4	0.3
		sum	32.6		69.6	43.5	

Applicable State SO2 rule(s):	326 IAC 7-1.1-2	Sulfur Dioxide Emission Limitations:specified
Each unit is less than 25 tons SO2 per year potential however, apply limit so no future modification needed		

What % sulfur fuel utilized would exceed 24 tons SO2 per year?

$$142 \text{ (S\%)/1000 gal} \times \text{gal/.14 MMBtu} \times 10 \text{ MMBtu/hr} \times 8760/2000 = 24.0 \text{ tons SO2/yr}$$

$$\% \text{ S} = 0.54 \text{ \% for SB-2 and SB-3}$$

$$0.48 \text{ \% S} = 0.5 \text{ lbs SO2/MMBtu}$$

